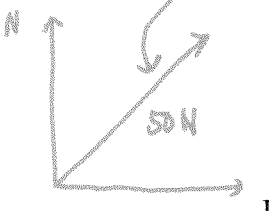
IB Math 2 Vector Notes Day 1

Scalar: a quantity that has only magnitude — Ex: Area, speed, distance

Vector: a quantity that has magnitude and direction. — Ex: Force, velocity, displacement

A vector is represented by a **directed line segment** or arrow.
Ex: Joe pushes a cart Northeast with a force of 50N.



Notation

Using points: $\overrightarrow{PQ}$

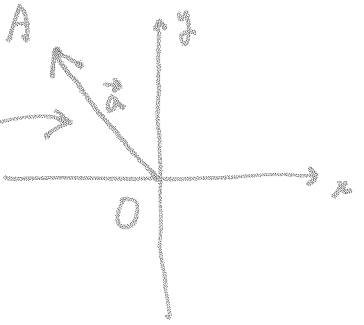
- The vector that starts at P and ends at Q.
- The position vector of Q relative to P.

Lower case letter

- Textbook: **r**
- Handwritten: $\vec{r}$

The **position vector** of point A:

- The vector from O (origin) to point A: $\overrightarrow{OA}$
- $\overrightarrow{OA} = \vec{a}$

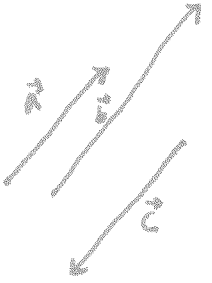


Properties

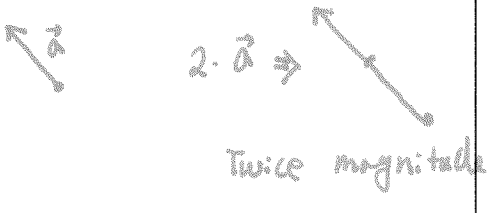
Equal Vectors

Same direction
Same Magnitude.

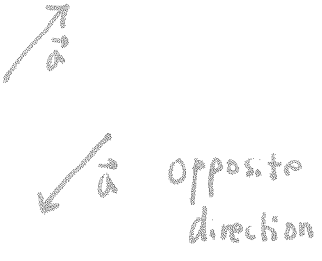
Parallel Vectors



Multiplication by a Scalar



Negative Vector



Zero Vector

Ex: Sheila runs east 4 km and south 2 km

Ex: Blue Bus starts in town P, goes to town Q, then to town R.
Red Bus goes straight from P to R.